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Institutes of Hotel Management (IHMs) under Ministry of Tourism of India: A Webometric Analysis

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Abstract

Purpose - Webometric studies, using link analysis between websites and URL analysis as the basic data type, have been used to assess institutional networks, and to analyse the level of homogeneity among the CIHMs websites.

Design/methodology/approach - data were collected from the websites of all 21 IHMs (Central institutes) using three different tools, viz., Google search engine; moz.com (earlier www.opensiteexplorer.org) and webpagetest.org (originally developed by AOL).

Findings – The present study results show that a total of 8 different domain names are used by the 21 central IHMs. This phenomenon explains that there is no homogeneity among the CIHMs websites. Analysis of the number of web pages and link pages of these websites reflects that some CIHMs have higher number of web pages, but correspondingly their link pages are very small in number and websites fall behind in their simple web impact factor.

Keywords – Webometrics, URL analysis, Domain and Page authority, File formats and Web impact factor (WIF)

1. Introduction

Internet makes us capable to communicate or disseminate the information without any geographical barriers in a very fast and convenient way at less cost. WWW is an easily accessible information space which is a constituent element of Internet. WWW is an internet accessible system of interlinked hypertext documents. Institution websites are powerful and most authentic (in general) primary source of information concerned with that particular institution and extensively used for various purposes like information about the courses offered, syllabus, admission process, faculties details, news, job vacancies, announcements, upcoming events etc. Due to their inevitable role, we can say that Institution websites acts as "**Mirror to the Institution's reputation, activities and prospects**".

Concept of Webometrics

Webometric is one of the most recent and a growing facet of the Metric studies. The term Webometrics originated by combination of two words i.e. "Web" (short form of World Wide Web) and "metrics" (means scale or measure). The term Webometrics was first coined in 1997 by Almind and Ingwersen. Bjorneborn and Ingwersen (2004) defined webometrics as "the study of the quantitative aspects of the construction and use of information resources, structures and technologies on the web drawing on bibliometric and Informetric approaches". Webometrics is the quantitative study of web-related phenomena which apply Bibliometrics, Scientometrics, Informetrics techniques in scientific communication processing.

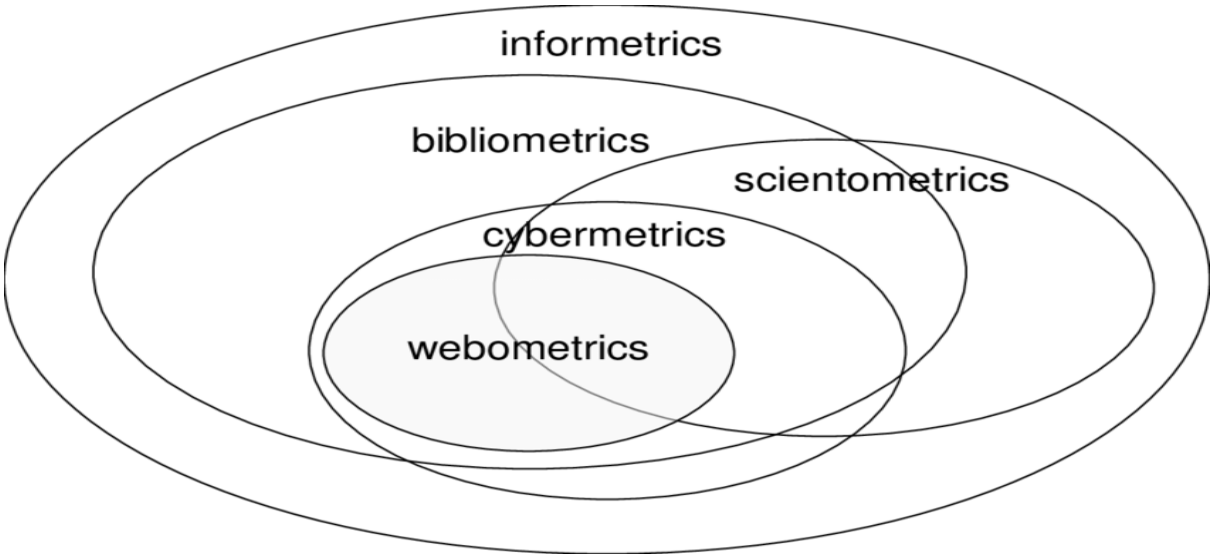

Fig. 1.1. The Informetric landscape; from Björneborn and Ingwersen (2001)
(The sizes of the overlapping ellipses are made for sake of clarity only.)

METHODS OF WEBOMETRICS

Webometric definition given by Bjorneborn and Ingwersen (2004) covers the quantitative aspects of both the construction side and usage side of the Web which embraces the four key areas of webometrics research:

i. Webpage content analysis
ii. Web link structure analysis (e.g. Hyperlink, Self link, External link and Inlink);
iii. Web usage analysis
iv. Web technology analysis (including search engine performance).

HOTEL MANAGEMENT INSTITUTIONS IN INDIA

Hotel management and catering technology educational institutions in India is regulated by the National Council for Hotel Management and Catering Technology (NCHMCT), which is an autonomous body under the Ministry of Tourism, Government of India. At present the number of Institutes of Hotel Management (IHM) and catering technology educational institutions affiliated by NCHMCT are as followings: -

Table 1.1: Number of NCHMCT affiliated IHMs and FCIs

Sl. no.	Category of institutions	Number of Institutions
1	**Central IHMs (CIHM)**	**21**
2	State IHMs (SIHM)	22
3	PSU IHMs (PSUIHM)	1
4	Private IHMs (PIHM)	20
5	Food Craft Institute (FCIs)	13
	Total	77

Our present study is limited to only CIHMs regulated by NCHMCT. The details of all the existing CIHMs are listed in Table 1.2, which gives a brief sketch of all 21 CIHMs in India with details like State, Year of establishment and URL.

Table 1.2: Central Government Affiliated IHMs (Alphabetical order)

S.No	Institution	State/U.T.	Website	Year
1	IHM Bangalore	Karnataka	www.ihmbangalore.kar.nic.in	1973
2	IHM Bhopal	Madhya Pradesh	www.ihmbhopal.ac.in	1978
3	IHM Bhubaneswar	Orissa	www.ihmbbs.org	1973
4	IHM Chandigarh	Chandigarh	www.ihmchandigarh.org	1990
5	IHM Chennai	Tamil Nadu	www.ihmchennai.org	1963
6	IHM Gandhinagar	Gujarat	www.ihmahmedabad.com	1972
7	IHM Goa	Goa	www.ihmgoa.gov.in	1968
8	IHM Gurdaspur	Punjab	www.ihmgurdaspur.org	1994
9	IHM Guwahati	Assam	www.ihmctanghy.org	1984
10	IHM Gwalior	Madhya Pradesh	www.ihmgwalior.net	1987
11	IHM Hajipur	Bihar	www.ihmhajipur.net	1998
12	IHM Hyderabad	Telangana	www.ihmhyd.org	1972
13	IHM Jaipur	Rajasthan	www.ihmjaipur.com	1976
14	IHM Kolkata	West Bengal	www.ihmkolkata.org	1963
15	IHM Lucknow	Uttar Pradesh	www.ihmlucknow.com	1969
16	IHM Mumbai	Maharashtra	www.ihmctan.edu	1954
17	IHM Pusa	New Delhi	www.ihmpusa.net	1962
18	IHM Shillong	Meghalaya	http://www.ihmshillong.nic.in	1995
19	IHM Shimla	Himachal Pradesh	http://ihmshimla.org	1984
20	IHM Srinagar	Jammu Kashmir	www.ihmsrinagar.edu.in	1982
21	IHM Thiruvananthapuram	Kerala	www.ihmctkovalam.org	1990

(Source: http://nchm.nic.in)

REVIEW OF LITERATURE

Brahma and Verma (2018) analyzed the websites of all 6 Indian Public libraries which are fully funded by Ministry of Culture. Search engine 'Open Site Explorer' was used for data collection. The result revealed that Khuda Baksh Oriental public library has highest domain authority; and National Library of India has highest page authority, highest EE-PLs and TE-PLs, Followed linking root domains, total linking root domain and linking C blocks. Delhi Public Library has highest IE-PLs and Total Internal links. Overall WIF of Central Secretariat Library ranked at the top position. The study also explored that IE-PLs and total internal links of four libraries (Central Secretariat Library, National Library, Rampur Raza Library, Thanjavur Maharaja Serfoji's Sarasvati Mahal Library) have zero links, which is an indication of poor visibility. The IWIF status of all these six public libraries are not in a very good position which directly hamper their accessibility and visibility in the web thus it is recommended to enhanced the Internal links of these websites as it should be interlinked among themselves to make the resources used at it is desired. **Lalbiakmawia and verma (2017)** analyzed the URL, File formats, WIF, Search engine performance, domain authority and page authority of IIMs websites. They found that 89.5 % and 10.5 % of IIMs' websites URL are using .ac.in and .ernet.in respectively. A total of 7 file formats are supported by their websites in which four are documents file formats (.html, .pdf, .doc, excel); two images file formats (.jpg/.jpeg, .png) and one *sound* file format (.wna). IIM Calcutta leads with using maximum (7) file formats. IIM Ahmedabad, IIM Bangalore and IIM Calcutta lead the highest

domain authority ranking while IIM Indore, IIM Udaipur and IIM Calcutta leads the highest Page authority ranking. In overall ranking of 19 IIMs' websites IIM Lucknow, IIM Rohtak and IIM Calcutta leads the tally with their RWIF score. They suggested that there is need to enhance the performance of IIMs website because there is big gap between Total Internal-links and Total External-links and in similar fashion there is big gap between internal passing-links and External passing-links. **Pechnikov and Nwohiri (2012)** examined the Nigerian universities websites and they found the weak connectivity of Universities websites. This also revealed that many universities sites had small number of HTML Pages and Outlinks. Old universities had more number of Inlinks and Outlinks compared to the new universities. They also recommended that all universities should switch to the use of **edu.ng** as their top-level domains; special attention should be paid to the creation of web communicators etc.

OBJECTIVE OF STUDY

The major objectives of the study are: -

1. To analyses the **URLs** of Central IHMs websites in India
2. To determine the **number of web pages**, **domain and page authority** of websites under study
3. To examine the **Just discovered links** and **Established links** of Central IHMs websites in India
4. To examine the **File format** supported by CIHMs websites under study
5. To calculate the **web impact factors** of these websites

METHODOLOGY

To conduct the study, the list of CIHMs was retrieved from the official website of NCHMCT, autonomous bodies under Ministry of Tourism, Government of India. We selected all 21 CIHMs which are affiliated with NCHMCT. We collected the URLs of 17 CIHMs from the official website of NCHMCT (i.e.,) nchmc.nic.in and 4 CIHMs URLs are not updated on http://nchm.nic.in. Which are IHM Shillong, IHM Shimla, IHM Srinagar and IHM Bhopal. These 4 CIHMs URLs is collected by general search on Google.

Selection of Search Engines: To collect the required data for the present study, an appropriate search engine is needed. The search engine coverage should be vast (i.e. more hyperlinks) with advanced search facilities to count links possessed by the websites. Google search engine is one of those which fulfil the above criteria. Therefore, we used Google search engine, for webometric data collection and analysis, in the present study.

Domain authority and Page authority: Both Domain authority and Page authority is a quality score developed by Moz. Domain authority is a quality score out of 100 which measures the predictive ranking of entire domains or sub-domains whereas page authority predicts how well a specific page will rank on search engines. A high page authority score means the page has the potential to rank well in search engine results. Domain authority best used as a comparative metric (ex: comparing a website's DA score to that of its direct competitors).

Just discovered links & Established links: Just discovered links are the links that the website has received in the last 60 days as found by the Moz tool whereas Established links

are those links which have crossed minimum 60 days and are now recognized ones. This number helps in measuring the effectiveness of the content created for the website in order to improve the position of a website in search engine results page (SERPs) (Jhamb, 2017). Established links are also known as Total linking root domains.

File Formats Supported by CIHMs Website: File format describes the way data is stored in a file. All the CIHMs websites are analysed through **google.com** and **webpagetest.org** with use of appropriate Query Syntax

Table 1.3: Webometric query syntax supported by Google with results

S.No	Search commands	Search results
1	domain**:**URL	No. of web pages at the websites under the URL
2	link domain**:**URL	No. of link pages linking to the websites under the URL
3	link domain**:**URL AND domain: URL	No. of **self-link pages** from the same website (**hyperlink)**
4	link domain**:**URL AND NOT domain: URL	No. of web pages not under the URL but provide hyperlink to URL hence called **external link pages**
5	link domain**:**URL NOT domain: URL	No. of links incoming from other websites (**In-links**)
6	Site:URLfiletype:pdf	No. of PDF type files in the website

Calculation of WIF: The Web Impact Factor (WIF) is a form of measurement which was developed by Peter Ingwersen to quantify the impact of a website by the number of links received. WIF is directly proportional to the perceived reputation of the website (Noruzi, 2006).

Table 1.4: Acronyms and explanations used in study for web pages

S.No	Acronym	Description	Web impact factor	calculation
1	NWP	Total no. of Web Pages (A)	SWIF (Simple Web Impact Factor)	= B/A
2	LWP	Link Web Pages (B)		

Findings:

URL Analysis: URL is a specific character string that comprises a reference to a resource. URL composed of the transfer protocol, domain names, directory and file name. For studying the URLs of the central IHMs websites, the domain name has been taken into account wherein Table 1.5 represents the URL analysis of central IHMs website. Total 8 different domain names are used among 21 central IHMs wherein the most prevalent among them are **.org** extension which is used by 9 (42.86%) CIHMs website, followed by .com which is used by 3 (14.29%), .net used by 3 (14.29%), nic.in used by 2 (9.52%) and .edu, .edu.in, .ac.in and .gov.in being used by 1 CIHM website each respectively. This phenomenon explains that there is no homogeneity among the CIHMs websites.

Table 1.5: Classification of central IHMs websites by the domain extension

Domain	Number of CIHMs	Percentage
.org	9	42.86
.com	3	14.29
.net	3	14.29
.nic.in	2	9.5
.edu.in	1	4.76
.edu	1	4.76
.ac.in	1	4.76
.gov.in	1	4.76
Total	21	100

Domain authority and Page authority: Domain authority and Page authority of CIHMs is depicted in the Table 1.6.

Table 1.6: Domain Authority and Page Authority of Central IHMs Websites

Sl. No.	Institutions	Domain Authority (%)	Page Authority (%)
1	IHM Bangalore	75 (13.69%)	49 (8.18%)
2	IHM Bhopal	14 (2.55%)	16 (2.67%)
3	IHM Bhubaneswar	32 (5.84%)	34 (5.67%)
4	IHM Chandigarh	27 (4.93%)	32 (5.34%)
5	IHM Chennai	33 (6.02%)	34 (5.67%)
6	IHM Gandhinagar	31 (5.66%)	33 (5.51%)
7	IHM Goa	22 (4.01%)	27 (4.51%)
8	IHM Gurudaspur	24 (4.38%)	30 (5%)
9	IHM Guwahati	17 (3.1%)	25 (4.17%)
10	IHM Gwalior	23 (4.2%)	32 (5.34%)
11	IHM Hajipur	27 (4.93%)	32 (5.34%)
12	IHM Hyderabad	27 (4.93%)	34 (5.67%)
13	IHM Jaipur	17 (3.1%)	25 (4.17%)
14	IHM Kolkata	32 (5.84%)	33 (5.51%)
15	IHM Lucknow	28 (5.11%)	32 (5.34%)
16	IHM Mumbai	37 (6.75%)	46 (7.68%)
17	IHM Pusa	33 (6.02%)	35 (5.84%)
18	IHM Shillong	22 (4.01%)	25 (4.17%)
19	IHM Shimla	25 (4.56%)	23 (3.84%)
20	IHM Srinagar	1 (0.18%)	1 (0.17%)
21	IHM Thiruvananthapuram	1 (0.18%)	1 (0.17%)
	Total	548 (99.99%)	599 (99.96%)

(Source: Data were collected through online tool **moz.com**)

Analysis shows that the domain authority of IHM Bangalore is the highest with score of 75 (13.69%) among the websites, followed by IHM Mumbai with 37 (6.75%) and third position is shared by IHM Pusa and IHM Chennai with 33 score each (6.02%). Page authority of IHM Bangalore is the highest with 49 (8.18%) scores, followed by IHM Mumbai with 46 (7.68%) scores and IHM Pusa with 35 (5.84%) scores.

Just discovered links & Established links: Just discovered links & Established links of CIHMs is depicted in the Table 1.7.

Table 1.7: Just discovered links and Established links of Central IHMs Websites

Sl. No.	Institutions	Just discovered links	Established links
1	IHM Bangalore	8	154
2	IHM Bhopal	24	30
3	IHM Bhubaneswar	14	287
4	IHM Chandigarh	13	230
5	IHM Chennai	10	266
6	IHM Gandhinagar	15	206
7	IHM Goa	41	129
8	IHM Gurudaspur	16	118
9	IHM Guwahati	0	43
10	IHM Gwalior	19	158
11	IHM Hajipur	14	176
12	IHM Hyderabad	11	277
13	IHM Jaipur	2	47
14	IHM Kolkata	32	250
15	IHM Lucknow	7	146
16	IHM Mumbai	78	1200
17	IHM Pusa	20	240
18	IHM Shillong	74	158
19	IHM Shimla	7	92
20	IHM Srinagar	0	0
21	IHM Thiruvananthapuram	0	0

(Source: Data were collected through online tool moz.com)

Analysis of data shows that the Just discovered links of IHM Mumbai is the highest position with 78 counts, followed by IHM Shillong with 74 and third position is occupied by IHM Goa with 41 counts. Established links of IHM Mumbai is the highest with 1200 counts, followed by IHM Bhubaneshwar with 287 and IHM Hyderabad with 277 counts. Both IHM Srinagar and IHM Thiruvananthapuram has got 0 score in both cases Just discovered links and Established links as they have received zero/negligible number of links in the last 60 days as measured by Moz tool.

File Formats Supported by CIHMs Websites were analysed through google.com and webpagetest.org. It was found that document file formats (html, htm, pdf, doc, ppt) and image file formats (gif, png, jpeg, etc.) have been used to display information on the website. It is evident from table 1.8 that HTML format is the only file format which is supported by all CIHMs website. File format js and gif are supported by 95.24 %, PNG supported by 90.48 %, PDF supported by 85.71 %, followed by CSS (80.95 %), JPEG (71.43 %), WOFF (66.67 %), DOC (38.09 %), PHP (33.33 %) and MS-PPT (4.76%). IHM Mumbai and IHM Gandhinagar websites has used maximum of 10 file formats to represent the information content of their Institute. The least number of file formats are used by the IHM Guwahati (3) and IHM Srinagar (5) for their websites.

Table 1.8: Types of files formats supported by Central IHMs

Name of CIHMs	HTML	JS	PNG	GIF	Woff	JPEG	PDF	DOC	PHP	MS-PPT	CSS	Total formats supported
IHM Bangalore	√	×	√	√	×	√	√	√	×	×	×	6
IHM Bhopal	√	√	√	√	√	√	√	×	×	×	√	8
IHM Bhubaneswar	√	√	√	√	√	√	√	×	√	×	√	9
IHM Chandigarh	√	√	√	√	×	√	√	√	×	×	√	8
IHM Chennai	√	√	√	√	√	×	√	√	×	×	×	7
IHM Gandhinagar	√	√	√	√	√	√	√	√	√	×	√	10
IHM Goa	√	√	√	√	√	√	√	√	×	×	√	9
IHM Gurudaspur	√	√	√	√	√	√	√	×	√	×	√	9
IHM Guwahati	√	√	×	√	×	×	×	×	×	×	×	3
IHM Gwalior	√	√	√	√	√	√	√	×	√	×	√	9
IHM Hajipur	√	√	√	√	√	√	√	×	×	×	√	8
IHM Hyderabad	√	√	√	√	√	√	√	×	√	×	√	9
IHM Jaipur	√	√	√	√	×	√	√	√	√	×	√	9
IHM Kolkata	√	√	×	√	×	×	√	√	√	×	×	6
IHM Lucknow	√	√	√	√	√	√	×	×	×	×	√	7
IHM Mumbai	√	√	√	√	√	√	√	√	×	√	√	10
IHM Pusa	√	√	√	√	√	×	√	×	×	×	√	7
IHM Shilong	√	√	√	√	×	√	√	×	×	×	√	7
IHM Shimla	√	√	√	√	√	×	√	×	×	×	√	7
IHM Srinagar	√	√	√	×	×	×	√	×	×	×	√	5
IHM Thiruvananthapuram	√	√	√	√	√	√	×	×	×	×	√	7
Percentage	100	95.24	90.48	95.24	66.67	71.43	85.71	38.09	33.33	04.76	80.95	

Source: webpagetest.org and google.com

The WIF of the CIHM websites are presented in table 1.9. Dividing the number of link pages (B) by the number of WebPages (A), the number of simple WIF (B/A) of each Central Institute of Hotel managements websites is calculated. IHM Bhopal secured the first place with WIF 1.14 and second and third place occupied by IHM Bhubaneswar and IHM Hajipur. Though IHM Mumbai has highest number of webpages it secured 14th position in WIF ranking. Because the number of link pages is very less compared to its number of webpages. IHM Pusa has the second highest number of webpages but secured 4th position in WIF ranking. This shows that to maintain a good SWIF ranking a proper balance between number of webpages and number of link pages (like IHM Pusa) is necessary.

Table 1.9: WIF of Central IHMs websites

Name of CIHMs	No. of web pages (A)	Total links (B)	SWIF D = (B/A)	Ranked by SWIF
IHM Bhopal	7	8	1.14	1
IHM Bhubaneswar	5680	5660	0.996	2
IHM Hajipur	1330	1260	0.95	3
IHM Pusa	7750	7260	0.94	4
IHM Bangalore	1250	1150	0.92	5
IHM Srinagar	122	86	0.70	6
IHM Gwalior	280	194	0.69	7
IHM Jaipur	9	6	0.67	8
IHM Shimla	396	234	0.59	9
IHM Goa	185	106	0.57	10
IHM Chandigarh	211	118	0.56	11
IHM Gandhinagar	1030	470	0.46	12
IHM Gurdaspur	89	32	0.36	13
IHM Mumbai	9600	2590	0.27	14
IHM Guwahati	5380	495	0.09	15
IHM Shilong	504	33	0.07	16
IHM Lucknow	572	10	0.017	17
IHM Chennai	5630	9	0.002	18
IHM Thiruvananthapuram	4490	6	0.0013	19
IHM Hyderabad	6050	8	0.001	20
IHM Kolkata	8510	7	0.0008	21

DISCUSSION:

There was no webometric analysis done earlier on Central IHMs website and *perhaps* not even on any Hotel Management institutions website in India. So, exact comparison of our study with previous studies of same *nature (Subject area)* of institutions (i.e. Hospitality /Hotel Management institutions' website) can't be possible. Therefore, we selected earlier studies on IIMs and IITs websites to compare our study's findings. IIMs and IITs is structurally (Administrative as well as academic point of view) very much similar to central IHMs. As all three are group of autonomous institutions under central government and serve

to some particular core stream of subject like Management, Engineering and Hospitality respectively. For discussion, we select the earlier studies on IIMs and IITs websites whose objectives of webometric analysis is very much similar to our study i.e. URL analysis, file formats supported by websites, link analysis and calculation of WIF etc.

There is a big variation in the use of domain name system among IHMs website with 8 different domain names (.org, .com, .net, .nic.in, .edu.in, .edu, .ac.in, .gov.in) whereas in the case of IITs library website there is very less variation in this aspects with only two different domain names (i.e., .ac.in and .ernet.in). In the *similar line*, there is very less variation in the domain name among IIMs website (i.e., .ac.in and.ernet.in).

IHM Mumbai and IHM Ahmedabad website has used maximum file format 10 to represent the information content of Institute. HTML format is the only file format which is supported by all CIHMs website in similar study on IIMs website (Lalbiakmawia, 2017) also found that HTML format is supported by all IIMs. In the similar file format analysis of IIMs website, it is found that it also supports all three major categories of file format with unequal distribution of file format supports in their website. In the case of IITs library website all three major categories of file formats (document, image and audio/video) is supported although it is not used equally by all IITs.

It is quite interesting to note that IHM Bhopal which secured the first place in WIF ranking (with 1.14 score) has the least number of WebPages (i.e., 7) and IHM Mumbai has highest number of WebPages but secured 14th position in WIF ranking. This shows that to maintain a good SWIF ranking a proper balance between number of webpages and number of link pages (like IHM Pusa) is necessary. IHM Pusa has the second highest number of webpages it secured 4th position in WIF ranking.

Suggestions

1. In order to develop the IHMs as a group of brand institutions, it is recommended that they need to maintain some uniformity in the domain name system of their websites.
2. To maintain a good SWIF ranking a proper balance between number of **webpages** and number of **link pages** is necessary.
3. All IHMs websites must facilitate the support of all three major categories of file format (document, image and audio/video).
4. To improve the Just discovered links contents created by these websites need to be enhanced qualitatively.

CONCLUSION

The result of present study is a good indicator to these CIHMs to where they need to focus to improve their website ranking. Our present webometric analysis is limited to only Central IHMs. This webometric analysis is further limited to URL analysis, Links analysis, File formats supported, WIF. There is a good scope for webometric studies of hotel management institution in both horizontal (i.e. other categories of Hotel management institution) as well as vertical dimension (different areas of webometric analysis).

REFERENCES

Almind, T.C. and Ingwersen, P. (1997). Informetric analyses on the world wide web: methodological approaches to 'webometrics', *Journal of Documentation*, 53(4), 404-426.

Björneborn, L. and Ingwersen, P. (2004). Towards a basic framework for webometrics. *Journal of the American Society for Information Science and Technology*, 55(14), 1216-1227.

Brahma, K., and Verma, M. K. (2018). Evaluation of websites of public libraries of India under Ministry of culture : A webometric analysis. *Journal of Information science Theory and PracticeJISTAP*, 16-24.

Central Government Affiliated Institutes of Hotel Management. (2019, March 10). Retrieved from National Council For Hotel Management: http://nchm.nic.in/node/191

Jhamb, G., & Ruhela, A. (2017). A Webometric study of the websites of Public libraries. *International Journal of Library and Information studies, 7*(4), 83-89.

Lalbiakmawia, R., & Verma, M. K. (2017). Websites of Indian Institutes of Management (IIMs) established before 2016: A webometric analysis. *KIIT Journal of Library and Information Science*, 121-129.

Noruzi, A. (2006), "The web impact factor: a critical review", The Electronic Library, 24 (4), 490-500.

Pechnikov, A. A., & Nwohiri, A. M. (2012, June). Webometric analysis of Nigerian university websites. *Webology, 9*(1). Retrieved from http://www.webology.org/2012/v9n1/a95.html